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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,972

02/08/2005

Eiji Kadouchi

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EXAMINER

BERHANU, SAMUEL

ART UNIT

PAPER NUMBER

2838

MAIL DATE

DELIVERY MODE

01/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/523,972

Applicant(s)

KADOUCHI ET AL.

Examiner

Samuel Berhanu

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,6 and 8-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,6 and 8-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5-6, 8- 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hashiguchi (JP Publication number: 62-234878) (Hereinafter Hashiguchi) in view of McMahan et. al. (USP 6,002,240) (Hereinafter McMahan) in view of Thomas et. al. (US 2002/0079865) (Hereinafter Thomas).

Regarding Claim 1, Hashiguchi discloses all of the Claim limitations except, an independent discharge circuit having a heating resistor, whose resistance increases automatically, so that heat generating current stops, and said independent discharge circuit is directly coupled to the battery and can perform discharge independently from the charge/discharge operation of a main circuit.

McMahan discloses an independent discharge circuit having a heating resistor, and said independent discharge circuit is directly coupled to the battery and can perform discharge independently from the charge/discharge operation of a main circuit.

Thomas discloses a heating resistor increases automatically so that heat generating current stops and the independent discharge circuit is electrically connected to the battery

Regarding Claim 1, Hashiguchi discloses in Figures 1-2, a battery storing device comprising: a battery (8) storing section (1) that can store a battery inside and has a heat retaining function of retaining heat of the battery that is stored inside using heat insulating material (the box is a hermetically-sealed heat-insulated box, see abstract and Claim 1); and a heat retention releasing mechanism (an air flowing door 3) for releasing the heat retaining function, Wherein the heat retention releasing mechanism (3) opens and closes an opening for making air flow between the inside and outside of the battery storing section (1) (noted that element 2 and 3 is used as a means of air flowing in and out from the box 1, see Abstract).

McMahan discloses in Figures 1-4, said independent discharge circuit (heat discharge warmer circuit, 150) is directly coupled to the battery and can perform discharge independently from the charge/discharge operation of a main circuit (discharging the heater circuit 150 is occurred independently of the main circuit 200, figure 3 shows how the heating circuit 150 is functioned independently of the main circuit 200).

Thomas discloses in Figure 44, and paragraph 0193, a heating resistor increases automatically so that heat generating current stops, and the independent discharge circuit is electrically connected to the battery (see below)

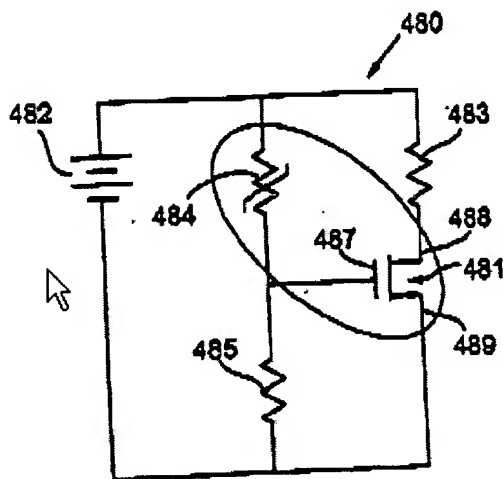


Fig. 44

[0193] In accordance with this aspect of the inventions disclosed, PTC device 484 is thermally coupled to the FET device 481 as a protection against failure of the FET device 481 in case of overcurrent. As the voltage across the PTC device 484 and, therefore, the voltage across the FET device 481, approaches a level that might otherwise cause the FET device 481 to fail, current flowing through the PTC device 484 will suffice to raise the temperature of the PTC device 484 to its trip temperature. Once PTC device 484 trips to its high resistance state, the voltage across the device 484 will immediately drop to a level below the threshold gate voltage of the FET device 481, causing the FET device 481 to turn OFF.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to add McMahan's heater circuit and Thomas's PTC battery temperature control means in Hashiguchi's system to protect the battery by cutting off the current when excessive current flows through the batteries or when battery temperature rises abnormally, and to increase effective usefulness of the battery during extreme cold conditions.

Regarding Claim 5, Thomas discloses wherein the independent discharge circuit has at least a PTC device

Regarding Claim 6, Hashiguchi discloses in Figures 1-2, a temperature detector (10) for detecting temperature inside the battery storing section. However, McMahan discloses in Figures 1-4, a circuit control section for controlling the independent discharge circuit based on the temperature detected by the temperature detector.

Regarding Claim 8, Hashiguchi discloses in Figures 1-2, a heat conductor forming a heat conduction route for conducting heat between the inside and outside of the battery storing section; and a mechanism for opening and closing the heat conduction route (noted that when the door is opened/closed heat is exchanged between the inside and the outside environment)

Regarding Claim 9, Hashiguchi discloses in Figures 1-2, a temperature detector (10) for detecting temperature inside the battery storing section; and heat- retention release control section for controlling the heat retention releasing mechanism based on the temperature detected by the temperature detector (Noted that the door is opened and closed as the temperature inside heat-insulated box deviates).

Regarding Claim 10, McMahan discloses, the battery is a lithium secondary battery (See column 1, lines 24-26)

Regarding Claim 11, Hashiguchi discloses a battery storing device (1); and a battery stored in the battery storing device.

Regarding Claim 12, McMahan discloses in Figures 1 and 2, an electrically driven mechanism (200) for being driven by power supply from the power supply device (100).

3. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashiguchi in view of McMahan, in view of Thomas , and in view of Artweger (USP 4,301,789).

Regarding Claim 13, Artweger discloses in Figures 1-4, Column 3, lines 6-20, the vacuum heat insulating material is comprised of polyurethane foam grappled in laminated film.

It is useful to make heat insulating member 108 of a plastic foam and the entire unit may then be produced in a mold in which a suitable synthetic resin, such as polyurethane is shaped and foamed about synthetic resin plate 107 and front wall 102, with synthetic resin film 114 laminated thereto, which are placed in the mold. Shaping and foaming of member 108 thus produces a fluid-tight unit which avoids heat losses. The density of the polyurethane foam and the wall thickness between the bottom of the cavity 113 and an outer surface of the member are selected as a function of a desired amount of heat insulation. This considerably reduces any thermal energy loss from the heat carrier fluid to the ambient atmosphere and thus further increases the temperature of the fluid delivered from the unit to a heat exchanger.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify heat insulating material of Hashiguchi and use polyurethane foam as taught by Artweger in order to reduce any thermal energy loss.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashiguchi in view of McMahan, in view of Thomas , and in view of Oshida et. al (USP 5,585,204) (Hereinafter Oshida).

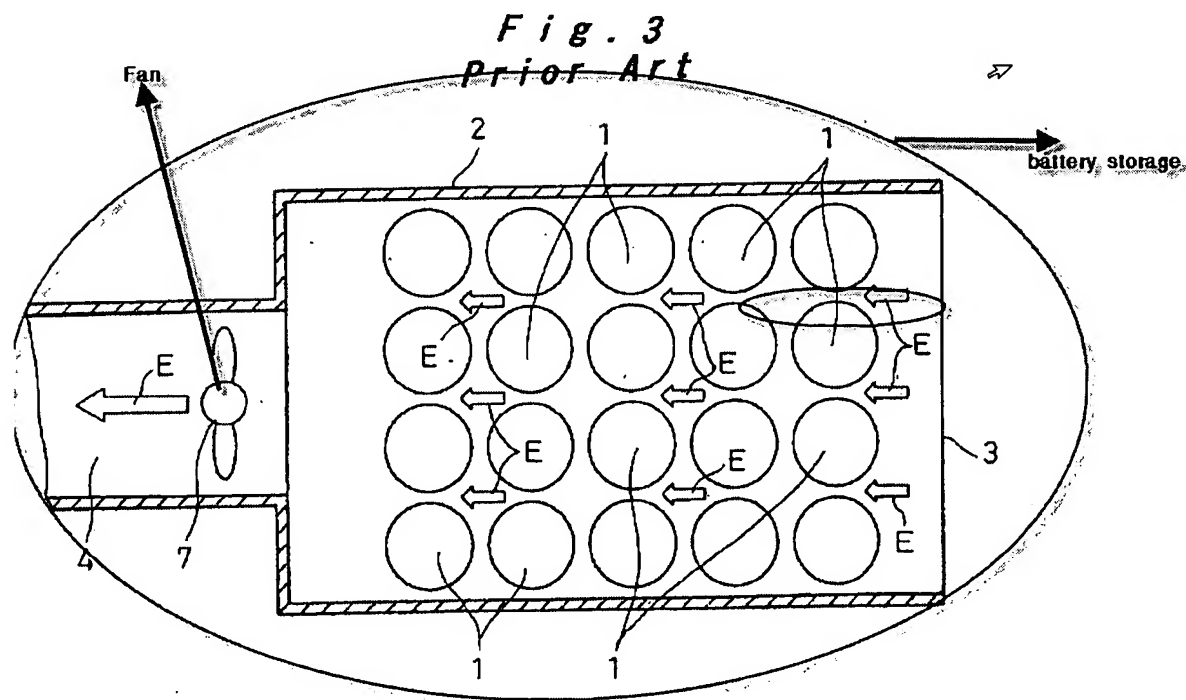
Regarding Claim 14, Oshida discloses in Figure 22, a plurality of heat conducting fins (152), a heat conducting body (154) located at said opening for conducting heat

between said plurality of fins, wherein said heat conducting fins communicate with said heat conducting body.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the opening of Hashiguchi's system and add a heat conducting plate and fins as taught by Oshida to provide exchange heat highly and efficiently.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashiguchi in view of McMahan, in view of Thomas, and in view of Kimura et. al (US 2004/0061480) (Hereinafter Kimura).

Regarding Claim 15, Kimura discloses in Figure 3, element 7, a fan located inside said battery storing section.



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It would have been obvious to a person having ordinary skill in the art at the time of the invention to add a cooling fan in Hashiguchi's system as taught by Kimura to control battery temperature to avoid overheating.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 5, 6, and 8-15 have been considered but are moot in view of the new ground(s) of rejection.

7.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Berhanu whose telephone number is 571-272-8430. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Adolf Berhane/
Adolf Berhane
Primary Examiner
Art Unit 2838

SB